

10/530528

JC13 Rec'd PCT/PTO 07 APR 2005

WRITTEN AMENDMENTS

(Amended under the provision of Article 11)

JPO Examiner: Mr Masaaki Moriuchi

1. Display of International Application

PCT/JP03/13167

2. Applicant

Name: Matsushita Electric Industrial, Co., Ltd.

Address: 1006, Oaza-Kadoma,

Kadoma-shi, Osaka 571-8501

Japan

Country of Origin: Japan

Address: Japan

3. Representative

Name: Ikeuchi Sato & Partner Patent Attorneys

Address: 26th Floor, OAP Tower, 8-30,

Tenmabashi 1-chome, Kita-ku,

Osaka-shi, Osaka 530-6026

Japan

4. Object of Amendment

Claims

5. Content of Amendment

(1) As in the appended documents, "...has positive refractive power." in claim 1 is amended to "...has positive refractive power;

wherein the arrangement of the refractive power of the lenses of the second lens group is one of positive, negative, negative, positive, negative and positive, negative, negative, negative, positive, negative, as seen from the side having the longer conjugate distance, and

wherein the zoom lens does not have a joined surface."

(2) As in the appended documents, claim 2 and claim 3 are cancelled.

(3) As in the appended documents, claim 22 is cancelled.

6. List of Appended Documents

Pages 79, 79/1 and 84 of the claims are new¹. One set of each.

¹ Translators note. These correspond to pages 82 and 87 of the English translation

CLAIMS

1.(amended) A zoom lens comprising at least three lens groups that are arranged in order of a first lens group that has positive refractive power, 5 and a second lens group that has negative refractive power, as seen from the side having the longer conjugate distance;

wherein the first lens of the lenses of the second lens group as seen from the side having the longer conjugate distance has positive refractive power;

10 wherein the arrangement of the refractive power of the lenses of the second lens group is one of positive, negative, negative, positive, negative and positive, negative, negative, negative, positive, negative, as seen from the side having the longer conjugate distance, and

wherein the zoom lens does not have a joined surface.

15

2.(cancelled)

3.(cancelled)

20 4. The zoom lens according to claim 1, wherein the following relationship is satisfied:

$$-0.6 < f_{2g}/f_{2top} < -0.15$$

where f_{2top} is the focal length of a first lens, as seen from the side having the longer conjugate distance, of the lenses of the second lens group, and where f_{2g} is the focal length of the second lens group.

25 5. The zoom lens according to claim 1, wherein the following relationship is satisfied:

$$0.25 < f_{rear}/f_{2top} < 0.95$$

30

where f_{2top} is the focal length of a first lens, as seen from the side having the longer conjugate distance, of the lenses of the second lens group, and where f_{rear} is the focal length of the lens group on the side having the shorter conjugate distance, with respect to an aperture stop.

35

6. The zoom lens according to claim 1,
wherein the front lens, as seen from the side having the longer

from the side having the longer conjugate distance;

wherein when changing magnification from the wide angle end to the telephoto end, the first lens group is fixed, and the second lens group and the third lens group move along the optical axis;

5 wherein the second lens group moves monotonously toward the side having the shorter conjugate distance and the third lens group moves monotonously toward the side having the longer conjugate distance and an aperture stop moves in conjunction with the third lens group; and

wherein the following relation is satisfied:

10 $|DG3 / fw| < 0.15$

where DG3 is the amount that the third lens group moves from the wide angle end to the telephoto end and where fw is the focal length of the zoom lens at the wide angle end.

15 18. The zoom lens according to claim 1,

wherein the zoom lens is a projecting lens for a projector.

19. The zoom lens according to claim 1,

wherein the magnification ratio of the entire lens system is used

20 in a range of -0.00058 times to -0.0188 times.

20. The zoom lens according to claim 1,

wherein the F number is 2.5 or 2.4

25 21. The zoom lens according to claim 1,

wherein the zoom ratio is 1.5, 1.6 or 1.65.

22.(cancelled)

30 23. A video enlarging/projecting system comprising:

a projecting lens in which the zoom lens according to claim 1 is used;

a light source, and

a spatial optical modulating element that is illuminated by light

35 irradiated from the light source, and that forms an optical image,